



Oversight Procedure 52 – Readiness to Execute FFGA/SSGA

1.0 PURPOSE

The purpose of this Oversight Procedure (OP) is to describe the review, analysis, recommendation procedures, and reporting requirements that the Federal Transit Administration (FTA) expects from the Project Management Oversight Contractor (PMOC) regarding the project's readiness for recommendation of a Full Funding Grant Agreement (FFGA) or Small Starts Grant Agreement (SSGA).

While this OP focuses on Capital Investment Grant (CIG) projects, which have specific requirements by law, it also applies to all capital projects. FTA will issue Implementation Plans (IPs) to clarify the specific reviews and expected deliverables based on the project types.

2.0 BACKGROUND

An FFGA/SSGA is a contract between the project sponsor and FTA. It details the rights and obligations of both parties relative to the project scope, budget, schedule, funding, and other terms. Because of the importance and the binding nature of the FFGA/SSGA, FTA requires a final review of the project sponsor's readiness to enter into an FFGA/SSGA (or to amend an FFGA/SSGA). Execution of an FFGA/SSGA is the final step in FTA's approval of a project for implementation. Review of the project sponsor's readiness is part of FTA's due diligence review prior to execution or modification of the FFGA/SSGA. The readiness review protects FTA's interests by providing a final check that all required predecessor activities have been satisfactorily completed and that required project resources are available. The FFGA readiness review for all New Starts projects is an "update" of prior reviews and risk assessments performed at Entry to Engineering, and possibly again during engineering.

- The PMOC should notify FTA of elements that need attention by the project sponsor so the PMOC can attest to the project's readiness for an FFGA/SSGA.
- At this stage, all issues must have been addressed to the satisfaction of FTA. If not, a plan of action satisfactory to FTA must be in place to address the issues.

The PMOC report, which is a product of the readiness review, becomes part of the package provided to Congress in conjunction with Congressional review of the proposed FFGA/SSGA.

3.0 OBJECTIVES

The objective of the readiness review to execute or amend an FFGA/SSGA is to confirm that:

- All technical aspects of the FFGA/SSGA are complete and accurate;
- All required plans and analyses have been satisfactorily prepared and implemented to the extent necessary; and
- The FFGA/SSGA attachments accurately represent the project's scope, schedule, and costs.

4.0 REFERENCES

The PMOC shall become familiar with the following references to Federal legislation, regulation, and guidance before reviewing the project sponsor's work. These are the principal references, but this list is not exhaustive:

4.1 Legislative

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646; 42 U.S.C. 4601, et seq.)
- [Infrastructure and Investment Jobs Act \(IIJA\), Public Law 117-58](#), effective November 15, 2021 (also known as the “Bipartisan Infrastructure Law”)

4.2 United States Code

- [49 U.S.C. 5327](#), Project Management Oversight

4.3 Regulations

- [23 CFR Part 450](#), Planning Assistance and Standards (Joint FTA/FHWA regulations)
- [23 CFR Part 771](#), Environmental Impact and Related Procedures (Joint FTA/FHWA regulations)
- [49 CFR Part 24](#), Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs
- [49 CFR Part 611](#), Major Capital Investment Projects
- [49 CFR Part 633](#), Project Management Oversight

4.4 FTA Circulars

- [C 4220.1F](#), Third Party Contracting Requirements
- [C 5010.1E](#), Award Management Requirements (or most recent version)
- [C 5800.1](#), Safety and Security Management Guideline for Major Capital Projects

4.5 Guidance

- [FTA Master Agreement](#)
- Reporting Instructions for the Section 5309 New Starts, Small Starts, and Core Capacity Criteria:
 - [New Starts](#)
 - [Small Starts](#)
 - [Core Capacity](#)
- [Project and Construction Management Guidelines \(2016\)](#)
- [FTA Guidance on the Application of 49 U.S.C. 5324\(c\) – Railroad Right-of-Way Acquisition \(April 30, 2009\)](#)
- [Quality Management System Guidelines \(2019\)](#)
- [FTA Construction Project Management Handbook \(2016\)](#) (See Value Engineering Process Overview, page 66)
- FTA Standard Cost Category (SCC) workbooks:

- [New Starts SCC Workbook](#)
- [Small Starts SCC Workbook](#)
- [Core Capacity SCC Workbook](#)

5.0 PROJECT SPONSOR SUBMITTALS

Before performing the review, the PMOC should obtain and study the following project documents. A more exhaustive list is identified in Appendix B of this OP. The PMOC should notify FTA of important discrepancies in the project information that would hinder the review. An example of a discrepancy would be a mismatch between drawings and cost estimate in which the drawings are current, and the cost estimate is two years old.

- **Scope/Project Definition**
 - Final environmental documents and National Environmental Policy Act (NEPA) determination
 - Basis of Design Reports, Design Criteria Reports
 - Engineering project plans, drawings, design criteria, standards, and specifications
 - Master Permitting plan and schedule
 - Geotechnical Baseline Report
 - Passenger level boarding design documents
 - Vehicle design documentation
 - Transit Capacity and Operating plan
- **Project Management Plan (PMP) and subplans completed, including, but not limited to:**
 - Signed agreements with railroads, utilities, and other third parties
 - Risk Assessment, Risk and Contingency Management Plan (RCMP)
 - Project Delivery plan, Contract Packaging plan, Procurement Policies and Procedures
 - Project sponsor Management Capacity and Capability
 - Update of Real Estate Acquisition Management Plan (RAMP) as needed
- **Schedule**
 - Project schedule in original and State Corporation Commission (SCC) format; schedule narrative describing critical path, expected durations, and logic
- **Cost**
 - Summary of Operations and Maintenance (O&M) Cost Assumptions/Productivities
 - Capital Cost Estimate in original and SCC format
 - Before-and-After Study Documentation (if study is required)
- **FFGA/SSGA attachments on scope of project, project description, Baseline Cost Estimate, project budget, Baseline Project Schedule**

6.0 SCOPE OF WORK

With the exception of the FFGA/SSGA attachments, all of the project sponsor submittals noted in Section 5.0 and Appendix B of this OP should have been previously reviewed by the PMOC

prior to final preparation for the FFGA/SSGA, and any deficiencies found as a result of those reviews should have been reconciled and corrected with the project sponsor. The scope of this procedure is to confirm that all documentation and analysis remains satisfactory and that there is consistency between the project documents and the proposed FFGA/SSGA. It is the PMOC's responsibility to notify FTA of any deficiencies prior to the preparation of the OP 52 report.

Qualifications of reviewers: To the extent possible, the reviewers should be the same individuals that performed the prior review of the project documents, and should be regular participants in project reviews.

The review effort should consist of the following:

1. Referring to the most current versions of the project sponsor submittals, the PMOC shall update previous reviews of project scope, schedule, cost, risk, project sponsor management capacity and capability, and the PMP.
 - a) The deficiencies found as a result of those reviews should be reconciled and corrected with the project sponsor prior to preparation of the OP 52 report.
2. Prior to the project sponsor's formal request to FTA for an FFGA/SSGA, the PMOC should complete their review and submit a funding recommendation for the project to FTA. This recommendation should be included in the executive summary as described below.
3. The PMOC's readiness report shall do the following (Appendix C provides a sample Table of Contents):
 - a) Integrate the findings and recommendations of the reviews above;
 - b) Prepare an executive summary in three pages or less that includes the following:
 - i) Synthesis of findings on scope, schedule, and cost;
 - ii) Professional opinion regarding the reliability of the project scope, schedule, cost, and the ability of the project sponsor to manage the project;
 - iii) Statement of potential range of cost (lower, upper bound, and most likely);
 - iv) Recommendation (if PMOC considers a recommendation appropriate) of the project to FTA for funding. This determination is based on the PMOC's finding that the project is accurately represented by the total project cost, scope description, and schedule, shown in draft attachments; and that the project has a high likelihood of staying within budget and schedule through construction and into revenue operations;
 - c) Document the assessment methodology;
 - d) Provide back-up information in appendices.
4. Another task is the PMOC's review of the FFGA/SSGA attachments to assure that they accurately represent the project scope, cost, and schedule.

7.0 REPORTS, PAPERS, PRESENTATIONS

The PMOC shall provide the COR/ACOR with a written report, formatted in compliance with OP 01, of their findings, analyses, recommendations, professional opinions, and description of the review activities undertaken, as well as other supporting information.

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After the COR/ACOR has transmitted formal acceptance of the report, the PMOC should share the report with the project sponsor. If there are differences of opinion between the PMOC and the project sponsor regarding the PMOC's findings, the COR/ACOR may direct the PMOC to reconcile their findings with the project sponsor and provide the COR/ACOR with a report addendum covering the modifications agreed upon by the project sponsor and PMOC.

When directed by the COR/ACOR, the PMOC shall perform data analysis and develop data models that meet FTA requirements using Microsoft Office products, such as Excel and Word, and use FTA templates when provided.

Upon approval by the COR/ACOR, the PMOC may add other software as required, but they should provide the COR/ACOR with documentation and report data when complete.



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APPENDIX A: ACCEPTABLE QUALITY LEVEL

	Desired Outcome	Performance Requirement	Checklist	Performance Measure	Acceptable Quality Levels	Monitoring Method
1	The Project Management Oversight Contractor (PMOC) shall review and analyze project documents to determine the readiness of the project sponsor to enter into or amend a Full Funding Grant Agreement (FFGA)/Small Starts Grant Agreement (SSGA) with the Federal Transportation Administration (FTA).	R1a. The PMOC shall develop and document a process for review and analysis of the required project documents to determine the project sponsor's readiness to execute or amend an FFGA/SSGA.	<input type="checkbox"/>	M1a. Review of the process documentation.	Q1a. PMOC provides documentation of the process.	MM1a. Periodic review by FTA or its agent.
		R1b. The PMOC shall use their process and project management judgment to review and analyze project documents to determine the project sponsor's readiness to enter into or amend an FFGA/SSGA with FTA.	<input type="checkbox"/>	M1b. There is a documented review and analysis of project documents to determine the project sponsor's readiness to enter into or amend an FFGA/SSGA with FTA.	Q1b. Review must be made and the PMOC provides internal verification that the process as documented has been followed.	MM1b. Periodic review by FTA or its agent and the PMOC's internal verification.
2	The PMOC shall form a professional opinion of the project sponsor's readiness to enter into or amend a FFGA/SSGA.	R2a. The PMOC shall perform a review and analysis of the project sponsor's submitted plans and other documents to assure that all required analysis and documentation has been properly prepared and	<input type="checkbox"/>	M2a. The PMOC's review and opinion as to the preparation and implementation of required analysis and documentation for FFGA/SSGA demonstrates sound management and	Q2a. Professional opinion of the preparation and implementation of required analysis and documentation submitted by project sponsor for FFGA/SSGA.	MM2a. Periodic review by FTA or its agent.

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	Desired Outcome	Performance Requirement	Checklist	Performance Measure	Acceptable Quality Levels	Monitoring Method
		implemented to the extent necessary to reach readiness for execution or amendment of an FFGA/SSGA.		engineering practices and professional experience.		
		R2b. The PMOC shall, after review and analysis of the project sponsor’s submitted plans and other documentation and the proposed FFGA/SSGA or amendment, determine whether all technical aspects of the FFGA/SSGA or amendment are complete and accurate and that there is consistency between the project documentation and the proposed FFGA/SSGA or amendment.	<input type="checkbox"/>	M2b. PMOC's review and opinion as to accuracy, completeness and consistency between documentation and proposed FFGA/SSGA or amendment demonstrates sound management and engineering practices and professional experience.	Q2b. Professional opinion of the accuracy, completeness, and consistency between documentation and proposed FFGA/SSGA or amendment.	MM2b. Periodic review by FTA or its agent.
3	The PMOC shall provide FTA with a written report of their findings, analysis, recommendations, and professional opinions.	R3. The PMOC shall present their findings, analysis, recommendations, and professional opinions to FTA in a written report.	<input type="checkbox"/>	M3. Review of the PMOC's presentation of findings, analysis, recommendations, and professional opinions by the FTA.	Q3. Reports and presentations are professional, clear, concise, and well written. The findings and conclusions have been reconciled with other PMOC reports and have been reconciled with the	MM3. Periodic review by FTA or its agent.

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	Desired Outcome	Performance Requirement	Checklist	Performance Measure	Acceptable Quality Levels	Monitoring Method
					project sponsor to the extent possible.	



APPENDIX B: CHECKLIST FOR APPROVAL OF THE FFGA/SSGA

This list categorizes elements to be completed prior to the Federal Transportation Administration’s (FTA’s) approval of the Full Funding Grant Agreement/Small Starts Grant Agreement (FFGA/SSGA). Each listed item is followed by a brief description of the level of completion expected of that item. The Project Management Oversight Contractor (PMOC) should notify FTA of elements that need attention by the project sponsor in order for the PMOC to complete the FFGA/SSGA Readiness Report.

Item	Description	OP	PMOC Review	Done
1.0	PROJECT DEFINITION			
1.1	System definition			
1.1.1	Alignment definition	32C	Alignment is defined to include the horizontal and vertical alignment, station locations, and length. The alignment should be developed beyond the definition contained in the National Environmental Policy Act (NEPA) documents to describe all structures necessary for the project.	<input type="checkbox"/>
1.1.2	Configuration Management plan	20	Configuration Management should document the process of managing the physical configurations and their supporting processes through documents, records, and data. Configuration Management should demonstrate a process that accommodates changes and continually documents how a physical system is configured, ensuring that documents, records, and data remain concise and valid.	<input type="checkbox"/>
1.1.3	Station requirements	32C	Requirements consist of station design characteristics, including station locations and station sizing. Platform lengths and support spaces for mechanical/electrical equipment should be identified.	<input type="checkbox"/>
1.2	Environmental constraints			
1.2.1	NEPA	32B	NEPA requirements include preparation of an Environmental Impact Statement (EIS) where effects from a proposed project are significant or a Finding of No Significant Impact (FONSI) and accompanying environmental assessment (EA) where effects are less than significant. For an EIS, FTA approves the preferred project through issuance of a Record of Decision (ROD). The ROD describes the	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			scope of the projected and committed mitigations to reduce the effects of identified impacts.	
1.2.2	Third-party requirements	20	<p>1. Evaluate third-party agreement, management capacity and capability assigned for leading and executing agreements, processes, tracking tools, and current agreement status.</p> <p>2. Types of agreements and information to be reviewed include (as applicable), but are not limited to:</p> <ul style="list-style-type: none"> • Utility relocation agreements (public-water, sewer, etc.); • Intergovernmental agreements (IGA) with local, State, and Federal entities; • Agreements with railroad companies (design, construction, and operating); • Agreements with airport and port authorities; • Third-party franchise agreements (gas, telephone, cable TV, other communications, and power); • Universities, colleges, and other educational institutions agreements; • Private sector parties impacted, and public/private funding arrangements (including transit-oriented development (TOD)); • Encroachment on Right-of-Way (ROW); • Permits and/or waiver/exceptions; and • Master permitting plan and schedule. <p>3. Identify all agreements needed by the project. Critical third-party agreements are required to be signed prior to an FFGA/SSGA.</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>
1.2.3	Geotechnical Baseline	32C	A geotechnical baseline report is prepared for projects involving tunnels or other underground structures, or where specific structures (for example, major bridges,	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			retaining walls, levees, or other facilities) will be located on material with questionable or unknown load-bearing capacity.	
2.0	PROJECT MANAGEMENT PLAN			
2.1	Basis of project documented	20	<p>Note: Some of the items listed are repeated below where additional review guidance is provided.</p> <ol style="list-style-type: none"> 1. FTA’s regulations are found in 49 CFR 633.25, which requires a Project Management Plan (PMP) to contain at a minimum the following: <ol style="list-style-type: none"> a) A description of adequate recipient staff organization, complete with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications; b) A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and such miscellaneous costs as the recipient may be prepared to justify (Note: budget should also address design, construction, and start-up/commissioning); c) A construction schedule (Note: schedule should address entire project from design through revenue operations); d) A document control procedure and recordkeeping system; e) A change order procedure that includes a documented, systematic approach to the handling of construction change orders (Note: should also address change orders for all procurements); f) A description of organizational structures, management skills, and staffing levels required throughout the construction phase (Note: budget should also address design, construction, and start-up/commissioning); g) Quality control (QC) and quality assurance (QA) programs that define functions, procedures, and responsibilities for construction and for system installation and integration of system components (Note: QA/QC program should also address design, procurement, and start-up/commissioning); 	<input type="checkbox"/>

Item	Description	OP	PMOC Review	Done
			<ul style="list-style-type: none"> h) Material testing policies and procedures; i) Plan for internal reporting requirements including cost and schedule control procedures; and j) Criteria and procedures to be used for testing the operational system or its major components. 	
			2. Legal authority for project	<input type="checkbox"/>
			<p>3. The PMOC will review and summarize their findings and opinions and present recommendations regarding the adequacy and soundness of the project sponsor’s plans and procedures, and the successful implementation of such plans and procedures for:</p> <ul style="list-style-type: none"> • NEPA coordination: The project sponsor’s plan for managing and implementing mitigation actions should be in place and environmental mitigation work should be incorporated into the design/contract documents, cost estimates, and schedules. • Design control: The project sponsor should implement appropriate plans and procedures for design control in all aspects. These plans and procedures should illustrate: <ul style="list-style-type: none"> ○ Consistency with design criteria; ○ Coordination and change control among design disciplines for drawings and specifications; ○ Completeness of soils testing and site surveys; ○ Coordination with third parties; and ○ Completeness of project documents for bidding. 	<input type="checkbox"/>
			4. The PMP should provide for implementation of project controls in all aspects, including procedures for cost and schedule control, risk management, and	<input type="checkbox"/>

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			dispute or conflict resolution during construction. The PMP should include procedures on cost sharing. Risk and contingency management policies and procedures should be in place and routinely used.	
			5. The PMP should confirm implementation of plans and procedures for project delivery and procurement. Specifically, it should focus on the schedule for bidding construction packages and procuring equipment and vehicles.	<input type="checkbox"/>
			6. Labor relations and policies.	<input type="checkbox"/>
			7. Plans and procedures regarding construction administration, construction management, construction inspection, coordinating construction work by third parties, site logistics, construction change order, and shop drawing document flow and authorities.	<input type="checkbox"/>
			8. Development of Start-up and Revenue Operations should be underway to establish plans and procedures regarding testing/commissioning, closeout of construction contracts, and training of staff.	<input type="checkbox"/>
			9. PMP subplans should include the QA/QC Plan, Safety and Security Management Plan, Real Estate Acquisition Management Plan, Bus and Rail Fleet Management Plans, and Risk and Contingency Management Plan (RCMP).	<input type="checkbox"/>
2.2	Environmental mitigation/assessment documented	20	1. Description of Mitigation Principles	<input type="checkbox"/>
			2. Plan for management and implementation of mitigation actions	<input type="checkbox"/>
2.3		20	1. Design contracting plan for the FFGA/SSGA phase	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
	Design Procurement and Control plan		2. Description of relationship between forecast ridership, operating plan, and proposed project transit capacity in guideways, stations, and support facilities	<input type="checkbox"/>
3. Design criteria for each discipline			<input type="checkbox"/>	
4. Schedule for the development of contract documents (level of development expected at each milestone for design/construction drawings, specifications, general and supplementary conditions of contracts for construction, and Division 1)			<input type="checkbox"/>	
5. Plan/procedures for design drawings and specifications			<input type="checkbox"/>	
6. Procedures for design change and configuration control of documents during Design and Construction			<input type="checkbox"/>	
7. Plan (list and schedule) for third-party agreements and permits, including utilities, real estate, railroads, TOD/joint development, etc.			<input type="checkbox"/>	
8. Investigation and testing plan (list and schedule) for site surveys, and geotechnical and materials investigation before/during design			<input type="checkbox"/>	
2.4			Project controls	20
2. Internal reporting procedures	<input type="checkbox"/>			
3. Cost control procedures	<input type="checkbox"/>			
4. Schedule control procedures	<input type="checkbox"/>			
5. Risk control procedures	<input type="checkbox"/>			

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Item	Description	OP	PMOC Review	Done
			6. Dispute/conflict resolution plan (claims avoidance and claims resolution)	<input type="checkbox"/>
2.5	Project construction delivery and procurement plan	20	1. Procedures for procurement	<input type="checkbox"/>
			2. Procurement plan and schedule	<input type="checkbox"/>
			3. Contracting strategy for transit-oriented development and joint development, if applicable	<input type="checkbox"/>
			4. Identification of Disadvantaged Business Enterprises (DBE) Opportunities, Federal DBE, State/Local Women Business Enterprises (WBE) & Minority Business Enterprises (MBE), Plans and Goals	<input type="checkbox"/>
			5. Negotiating and approving change orders and claims	<input type="checkbox"/>
			6. Procedures for claims avoidance	<input type="checkbox"/>
2.6	Labor relations and policies	20	1. Wage rates and classifications	<input type="checkbox"/>
			2. Wage and hour requirements	<input type="checkbox"/>
			3. State and local regulations	<input type="checkbox"/>
2.7	Construction procedures for fixed infrastructure	20	1. Construction Contract Administration	<input type="checkbox"/>
			2. Construction Management	<input type="checkbox"/>
			3. Construction Inspection	<input type="checkbox"/>
			4. Coordination with third parties	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			5. Site Logistics plan (materials transport and storage; temporary site facilities; maintenance of existing pedestrian ways, transit, and traffic operations during construction; and protection of existing utilities)	<input type="checkbox"/>
			6. Processing shop drawings, bulletins, and Requests for Information (RFIs)	<input type="checkbox"/>
			7. Substantial completion; final completion	<input type="checkbox"/>
2.8	Start up and Revenue Operations	20	1. Testing plan elements are identified and would be expanded at a later date.	<input type="checkbox"/>
			2. Closeout materials (warranties, testing results, Operation and Maintenance (O&M) manuals, spare parts, etc.) to be identified to provide direction to the engineer.	<input type="checkbox"/>
			3. Plan for staff training	<input type="checkbox"/>
2.9	QA/QC plan	24	The QA/QC Program Plan shall fully address all elements governing project activities through the design phase. The PMOC shall also confirm that the project sponsor has exhibited both a Quality Assurance and Quality Control review of their engineering package.	<input type="checkbox"/>
2.10	Safety and Security Management Plan	22	The plan is in place and is in compliance with FTA guidance as provided in FTA circular C 5800.1), Safety and Security Management Guidance for Major Capital Projects. Preliminary Hazard Analysis (PHA) and Threat and Vulnerability Assessment (TVA) are complete. Safety and Security Design Criteria development is complete.	<input type="checkbox"/>
2.11	Real Estate Acquisition and Relocation Plan	23	1. The plan conforms with and is expressly incorporated within the design drawings, master schedule, and budget for all phases and types of work planned or anticipated. Further, the Real Estate Acquisition Management Plan (RAMP) must meet all Federal requirements. The project sponsor should	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			provide a complete list of all parcels with title searches on all properties to be acquired and RAMP procedures.	
			2. Preparation of a relocation plan should include interviews with potential displacees that stresses that displacees are not to move until project plans have been finalized.	<input type="checkbox"/>
			3. The project sponsor shall exhibit management capacity and capabilities to implement the real estate acquisition and relocation process, including organization structure and staffing plan and any consultant agreements undertaken in support of these activities.	<input type="checkbox"/>
2.12	Rail and Bus Fleet Management	37	Plan demonstrates consistency with the project scope, NEPA documents, and the project's Operations plan.	<input type="checkbox"/>
3.0	MANAGEMENT CAPACITY AND CAPABILITY			
3.1	Organizational charts	21	Project organization charts show the complete organization, covering all project functions and all project personnel, regardless of affiliation. Staffing levels should be indicated. Charts should be time-oriented to show different organizational arrangements for different phases of the project.	<input type="checkbox"/>
3.2	Staff qualifications/Experience chart	21	Key personnel in all organizations should be identified along with their principal duties, reporting relationships, job descriptions, and job qualifications. Assigned responsibility and delegated authority should be defined. The size, qualifications, and availability of new and existing staff resources must be considered in relation to the human resource requirements and duration of the project. A responsibility matrix should be developed that identifies critical management activities and demonstrates the staff's ability to satisfy these requirements.	<input type="checkbox"/>
3.3	Staffing plan	21	Staffing levels should be indicated. Charts should be time-oriented to show different organizational arrangements for different phases of the project. The organization chart should be supplemented with a tabular staffing plan that shows	<input type="checkbox"/>

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			percent utilization, mobilization start date, and release date information (where applicable).	
3.4	Engineering/Design Consultants	21	During construction planning, careful examination of the existing labor situation has determined the impacts of DBE participation.	<input type="checkbox"/>
3.5	Agency-level processes and procedures	21	Should include project management policies and procedures and an adequate staff of professionals skilled in, but not limited to, project controls, QA/QC, cost estimation, scheduling, procurement, change control, risk management, transit operations, and public participation.	<input type="checkbox"/>
3.6	Resumes of project team members	21	Resumes should be provided for both agency and consultant key staff. Resumes must demonstrate experience and ability to manage each of the following key project areas: <ul style="list-style-type: none"> • Project management • Environmental assessment and mitigation leads • Operations planning, Fleet management lead • Design team leads • Quality assurance and Quality control lead • Project controls leads • Construction, permits, testing, start-up leads • Real estate lead • Safety review lead 	<input type="checkbox"/>
4.0	SCOPE			
4.1	Scope development	32C	1. Definition of the project (i.e., scope) contained in the project ROD/FONSI and most recent New Starts submittal agree with the scope as developed in engineering phase materials, including the approved PMP and the engineering design plans and specifications. Discrepancies or unclear scope items in the plans should be noted	<input type="checkbox"/>

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			2. Basic quantities, such as number and locations of facilities, peak and total vehicles, etc., identified in the environmental document and ROD/FONSI are the same as assumed in the current project definition.	<input type="checkbox"/>
			3. The current project design satisfies the capacity and operational objectives established in the approved environmental document.	<input type="checkbox"/>
			4. Mitigations committed to in the ROD (or project mitigation plans), when involving a physical or operational feature of the project, are incorporated, or are in the process of being incorporated, into the engineering design, proposed construction program, and/or other implementation plans. Mitigations could include changes in design, use of different types of material, modified traffic control, restricted construction activities, etc.	<input type="checkbox"/>
			5. Results of the hazard and threat and vulnerability analyses are incorporated in the design criteria and the scope of work.	<input type="checkbox"/>
4.2	Design package	32C	A Basis of Design Report is required, which presents the following content: 1. The project sponsor-accepted design standards and performance objectives, including consistency with the required transit capacity.	<input type="checkbox"/>
			2. Design, construction, system, and vehicle interfaces are well known and defined. Vehicle dynamic clearance and structure clearance diagrams are prepared.	<input type="checkbox"/>
			3. Design Reports, Concept of Operations Report, and configuration studies are adequate and complete.	<input type="checkbox"/>
			4. Design packages and contract packages are defined and delineated.	<input type="checkbox"/>

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			5. The documents possess a level of definition, clarity, presentation, and cross-referencing consistent with the scope definitions in following sections.	<input type="checkbox"/>
			6. The project is constructible. Adequate construction access and staging areas are identified.	<input type="checkbox"/>
4.3	Project Delivery Method Plan	32D	Procedures for Procurement (advertising, bidding, awarding of contracts for consultants and construction contractors, procurement for equipment, etc.) are established including: Procurement plan and schedule (indicate project phase, durations for RFP, screening, interviews, selection, board approvals, etc.); contracting strategy for Transit-oriented and Joint Development; and identification of DBE Opportunities and Federal DBE and State/Local WBE & MBE Plans and Goals.	<input type="checkbox"/>
4.4	Constructability	32C	The project sponsor's construction planning of the project has sufficiently and adequately addressed the constructability of the project. An in-depth constructability review is required of the project sponsor. It is a critical tool for synthesizing the design work.	<input type="checkbox"/>
4.5	Site and geotechnical conditions	32C	1. Digitized aerial photogrammetry (aerial photo background; planimetric, and topographic mapping) is complete.	<input type="checkbox"/>
			2. Photo simulations and/or schematic renderings are available for stations, samples of the alignment, and unique features of the line.	<input type="checkbox"/>
			3. Geotechnical investigations are complete, including a subsurface exploration or laboratory testing program. Requirements for additional geotechnical investigations have been defined. Identification of buried structures and utilities and identification of contaminated soils and other hazardous materials are complete.	<input type="checkbox"/>

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4.6	SCC 10 Guideway	32C	1. Major or critical design decisions have been researched and decided including location and extent of elevated or underground structures, rehabilitation or reuse of any existing infrastructure, structures, facilities, or systems.	<input type="checkbox"/>
			2. The choice of track or roadway design has been made for the line. Grade crossing construction is defined and clearances are established for operations, maintenance, and emergency evacuation. Guideway drainage has been defined.	<input type="checkbox"/>
			3. Major or critical work details, structural element dimensions, design interfaces, and physical interfaces have been identified and are defined in terms of drawings, standards, criteria, and specifications.	<input type="checkbox"/>
			4. Structural systems are established. Aerial guideway is dimensioned to show number of spans, span length, substructure design, etc.	<input type="checkbox"/>
			5. Preliminary mass balance diagrams have been developed for vertical alignments on fill or cut, supported by topographic surveys and soil investigations.	<input type="checkbox"/>
			6. Retaining walls and fills are located and dimensioned and defined in terms of drawings, standards, criteria, and specifications.	<input type="checkbox"/>
			7. Tunnels, both cut-and-cover and mined, are defined in terms of access and egress, construction access and laydown, openings for stations, passage chambers, ventilation or emergency access shafts or adits, sections, and profiles to depict and dimension major tunnel features. Tunnel design and dimensions have been cross-checked to adjacent building foundations and coordinated with the vehicle's dynamic envelope, walkways and egress, tunnel	<input type="checkbox"/>

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			lighting, and systems elements such as ventilation, communications, and traction power.	
			8. Trackwork is advanced to a level where single line schematics of the track layout, plan and profile drawings, dimensioned layouts of turnouts and crossovers, and tabulations of track geometry (horizontal and vertical curve data) have been defined. The alignment of any tunnel structure is referenced to the center line of track and base of rail. Guideway sections, inclusive of aerial, tunnel, and station cross sections, consistently show the distance from centerline of track to critical clearance points such as walls, walkways, and edges of platforms.	<input type="checkbox"/>
			9. Special trackwork is located and adequately defined.	<input type="checkbox"/>
			10. Where used, the contact rail system is specified with typical details and required clearances provided. End ramps and anchors are located. Gaps are coordinated with the traction power supply system. Feeder and return conductor attachment are specified and typical details provided.	<input type="checkbox"/>
			11. The need for special track construction for noise or vibration control is identified with locations and dimensions, and a preliminary choice is made for the noise and vibration control design.	<input type="checkbox"/>
4.7	SCC 20 Stations, Stops, and Terminals	32C	1. Major or critical design decisions have been researched and decided, including rehabilitation or reuse of any existing structures, facilities, or systems. Major or critical operational fire/life safety, and security requirements have been defined. Interfaces with other transit facilities or structures are identified and passenger and public circulation concepts are defined.	<input type="checkbox"/>

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			<p>2. Station architecture is established. The drawing package consists of site plans and—for station buildings—floor plans, elevations, longitudinal and cross sections, and details illustrating typical and special architectural conditions. The finish concept should be clearly described. The location and outline of fare gates and barriers should be shown. The location of ticket vending machines, electronic passenger information displays, security systems, and other platform amenities should be shown.</p>	<input type="checkbox"/>
		35	<p>3. Within the site context, the building footprints are shown. The relationship of the building to grade and to adjacent facilities is clearly defined, as is a provision for pedestrians and bicycles to access the public way from the building. Provision for motorized vehicles is also shown. Access to the platforms and buildings and within the buildings complies with the Americans with Disabilities Act (ADA). Any parking lots or structures are shown.</p> <p>4. Building sections and elevations illustrate the relationship of the station to grade (below, on-grade, elevated structure); the building structural system has been chosen and preliminary dimensions are established for clearances.</p> <p>5. Station building floor plans show vertical circulation systems, including stairs, elevators, escalators, and support spaces for mechanical, plumbing, electrical, and communications systems. The floor plans should show the agent area, fare gate area, retail areas, and any crew or public facilities.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		35	<p>6. Level boarding between the transit vehicle and the boarding platform complies with ADA. Documentation shows passenger-level boarding design for all stations and/or satisfactory determination of infeasibility for one or more stations along with a satisfactory alternative plan for accessibility.</p>	<input type="checkbox"/>

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			7. Preliminary identification of arts-in-transit is integrated into station design.	<input type="checkbox"/>
			8. Electrical systems should include a single line drawing including the source and distribution of power. Mechanical and electrical systems, including area drainage, piped utilities, heating ventilation and air conditioning, smoke evacuation, power, and lighting, are described and single line drawings are provided.	<input type="checkbox"/>
			9. Design interfaces among disciplines are defined on drawings, in standards, design criteria, specifications, and contract package scopes.	<input type="checkbox"/>
			10. Parking structure design has progressed to a level consistent with station buildings as described above, including vertical transportation and interface with the station buildings. Parking design is consistent with ROD.	<input type="checkbox"/>
4.8	SCC 30 Support facilities: yards, shops, administration buildings	32C	1. Major or critical design decisions have been researched and decided, including rehabilitation, reuse, or expansion of any existing structures, facilities, or systems. Major or critical operational fire/life safety, and security requirements have been defined.	<input type="checkbox"/>
			2. An architectural space program has been prepared for all occupied buildings, including for modifications to existing buildings such as Control Centers. The support facility drawings are consistent with the architectural program. Adequate employee parking is provided.	<input type="checkbox"/>
			3. Based on the vehicles chosen and utilization as set out in the fleet management plans, a review has been done to determine the number of required vehicle spots and facilities (jacks, wheel truing, etc.).	<input type="checkbox"/>

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			<p>4. A preliminary industrial engineering evaluation has been prepared for all workspaces in shops showing clearances, location of utilities (water, electric outlets, hose reels, etc.), and the flow of vehicles from revenue service through servicing and into storage or maintenance and then returning to service. Adequate space should be provided for material storage both in the building and outside.</p>	<input type="checkbox"/>
			<p>5. A site plan has been prepared showing vehicle (revenue, non-revenue, commercial, and private) access to shop buildings, storage yard layout, track layout, and location of auxiliary buildings, including pump houses, signal houses, and traction power substations. Provisions for fueling and fuel storage are located. The overall site plan (existing and proposed conditions) should include grading and drainage plans, site cross sections, utilities, and roadway and parking plans.</p>	<input type="checkbox"/>
			<p>6. Within the site context, the building footprints are shown. The relationship of the building to grade and to adjacent facilities is clearly defined, as is provision for vehicular and pedestrian access to new buildings. Access to the buildings and within the buildings complies with ADA.</p>	<input type="checkbox"/>
			<p>7. Basic facility architecture is established including vertical circulation requirements. The drawing package consists of site plans. For buildings, it also includes floor plans, elevations, longitudinal and cross sections, and details illustrating typical and special architectural conditions.</p>	<input type="checkbox"/>
			<p>8. Building sections and elevations illustrate the relationship of the buildings to grade (below, on-grade, elevated structure). The building structural system has been chosen and is dimensioned for clearances.</p>	<input type="checkbox"/>

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			9. Electrical systems should include a single line drawing including the source and distribution of power. Mechanical and electrical systems, including area drainage, piped utilities, heating ventilation and air conditioning, smoke evacuation, power, lighting, and fuel storage and dispensing, are described, and single line drawings are provided.	<input type="checkbox"/>
			10. Design interfaces among disciplines are defined on drawings, in standards, design criteria, specifications, and contract package scopes.	<input type="checkbox"/>
4.9	SCC 40 Sitework and Special Conditions	32C	1. Major drainage facilities, flood control, housing types, street crossings, traffic control, and utilities are defined and physical limits and interfaces are identified, based upon alignment base mapping, plans, and profiles.	<input type="checkbox"/>
			2. Major or critical design decisions are defined, including rehabilitation or reuse of existing structures or facilities.	<input type="checkbox"/>
			3. Areas requiring clearing or demolition are identified.	<input type="checkbox"/>
			4. Utility key maps, lists of owners, symbols, and notes are provided. Preliminary utility relocation plans have been developed.	<input type="checkbox"/>
			5. Mitigation plans have progressed for environmental issues and have been accepted by the authority having jurisdiction. Mitigation facilities such as wetlands, buffers, noise barriers, and historic preservation requirements are identified and located.	<input type="checkbox"/>
			6. A survey for hazardous materials has been completed.	<input type="checkbox"/>

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			7. On-site and off-site mitigation plan requirements are identified, and outline plans are prepared.	<input type="checkbox"/>
			8. Structural elements for retaining walls and other site structures are advanced in design.	<input type="checkbox"/>
			9. Preliminary mass balance diagrams for vertical alignments on fill or cut are supported by topographic surveys and soil investigations.	<input type="checkbox"/>
			10. Roadway modifications necessary to accommodate stations, guideway, or support facilities are defined and design is complete to a level comparable to that specified for guideway and stations. Traffic control devices or modifications have been defined.	<input type="checkbox"/>
			11. The landscaping requirements, including irrigation systems, are defined on the station, support facility, and guideway plans.	<input type="checkbox"/>
			12. The presence of buried structures, utilities, and contaminated soils, which may have to be removed, backfilled, or which would otherwise be unavailable for backfilling, has been taken into account.	<input type="checkbox"/>
			13. Within the site context, the building footprints are shown. The relationship of the buildings to grade and to adjacent facilities is clearly defined, as are provisions for pedestrians and bicycles and special maintenance access. Provision for motorized vehicle access is shown. Adequate surface parking, including spaces for disabled parking and facilities for bicycles, is provided, where needed. Access to stations and buildings complies with ADA.	<input type="checkbox"/>

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			14. Adequate construction access has been considered; and access and staging areas are identified.	<input type="checkbox"/>
			15. Maintenance of traffic and railroad protective flagging are identified and costs estimated.	<input type="checkbox"/>
4.10	SCC 50 Systems	32C	1. Major or critical design decisions have been researched and decided, including connections to, and rehabilitation or reuse of, existing systems. Pre-construction site reconnaissance and soil resistivity surveys are complete.	<input type="checkbox"/>
			2. Major or critical work details, structural element dimensions, design interfaces and physical interfaces have been identified and are defined in terms of drawings, standards, criteria, specifications, and contract package scopes. Single-line or functional block drawings are prepared for each system. Technologies have been chosen and evaluated for cost effectiveness, and expected performance has been defined. Major equipment (for the control room, substations, grade crossings, tunnel ventilation, and traction power) has been defined and identified in terms of basic specifications, outline drawings, general arrangements, and standard drawings and details.	<input type="checkbox"/>
			3. Signaling and train control – Decisions have been made regarding those sections of alignment to be operated under visual or traffic signal control, as opposed to train signal systems. Operations analysis has determined the most efficient location of interlockings based on track layout, headways, train lengths, and braking tables, as well as requirements of each interlocking and its control limits. Site-specific requirements are defined (for signal structural work). Locations for signal enclosures and relay rooms, including sizes as well as room layouts (relay, termination, power), are identified and defined. Signal cable routing methodology as well as power supply and distribution are	<input type="checkbox"/>

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			<p>identified and defined. Software and interface requirements (to facilities, existing system, and other system elements) are identified and defined. The scope of construction between contractors and other operators (railroads or existing agency systems) is defined. Maintenance, testing, and training requirements are identified and initially defined (factory acceptance, site acceptance, field integration, start up, etc.).</p>	
			<p>4. Traffic signals - Basic coordination between train control and traffic signals or other traffic controls has been evaluated. The interaction among traffic signals in the immediate area has been coordinated with local jurisdictions. Simulations have been completed on the impact of the transit system on local traffic and the impact of signalization on transit running times. Decisions have been made regarding transit vehicle pre-emption or priority and interaction with emergency vehicle priority systems such as Opticon. Site-specific requirements are defined (for structural work) and locations are defined for crossing gates and signal enclosures. Related requirements for grade-crossing protection, including use of four-quadrant gates or other methods to prevent vehicles from circumventing crossing gates, have been identified and defined. The location of vehicle sensing elements is shown on intersection drawings. Software and interface requirements (to the train control system and other system elements) are identified and initially defined. The scope of construction between contractors and others is defined. Maintenance, testing, and training requirements are identified and initially defined (factory acceptance, site acceptance, field integration, start up, etc.).</p>	<input type="checkbox"/>
			<p>5. Traction Power: Traction power requirements and the location of substations is established. The basis of design, including nominal project voltage and voltage limits, is identified. The Overhead Contact System (OCS) or contact rail layout is defined, including conductor sizes relative to existing parts of</p>	<input type="checkbox"/>

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			<p>system, as well as any supplementary parallel feeders to meet design requirements for substation out-of-service scenarios. Minimizations of voltage drop, maximization of vehicle propulsion system performance, and train regeneration issues have been initially addressed. Substation equipment requirements are identified. Single line drawings are provided. Preliminary equipment performance specifications have been developed. The source of commercial power is identified, preliminary negotiations have begun, and technical interface conditions are established. Substation grounding, stray current monitoring or testing, lightning arresters, and protective systems for equipment and utility system faults have been identified. Supervisory control has been defined as well as requirements for integration with central control.</p>	
			<p>6. OCS system type is identified, and issues associated with temperature variations are addressed. Decisions have been made regarding the types of support structures or poles to be used, particularly in an urban area. Tensions for the contact wire and messenger wire are defined; maximum distances between tensioning points are identified. OCS is sectionalized in coordination with the traction power supply. The basis for OCS design is established and design issues associated with overlaps, section insulators, and crossing and crossover locations are preliminarily addressed.</p>	<input type="checkbox"/>
			<p>7. Communication System: Communications plans, including building or equipment locations, and provisions for station message signs, public address, emergency phones, security cameras, intrusion detection, and other system elements, are defined and coordinated with station, guideway, support facility, and central control building plans. Cabling schemes are coordinated with the guideway and utilities. Preliminary specifications for the radio system have been developed and the system is coordinated with the vehicles and central</p>	<input type="checkbox"/>

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			control. Communication between field locations and central control is defined and coordinated with other systems.	
			8. Fare Collection System: The fare collection concept is defined and is accepted by all stakeholders. The number and location of fare collection equipment has been determined and is shown in the drawings. Basic equipment is specified.	<input type="checkbox"/>
			9. Central Control: An operations control center plan is provided, including basic layout and space allocation requirements. System interface requirements and modifications for existing central control facilities are coordinated with the systems being controlled. Provisions for security and emergency response are considered. Preliminary equipment and control system requirements are established.	<input type="checkbox"/>
4.11	SCC 60 ROW, Land, and existing improvements	32C	1. The RAMP is complete. Refer to the OP 23 RAMP for more information. Real estate documents and drawings identify the full takes, partial takes, temporary and permanent easements, and other rights. Any special access requirements for existing structures have been identified. Possible eminent domain actions need to be identified.	<input type="checkbox"/>
			2. Site surveys include property lines and identify structures for buildings, site features, utilities, and surface improvements, such as streets and railroad ROW, including private crossings of railroad ROW.	<input type="checkbox"/>
			3. The real estate information and survey information is fully coordinated with drawings of structures for guideways and buildings; site features; utilities; streets, railroads, transitways; construction easements; and site access and staging areas.	<input type="checkbox"/>

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			4. Parties to be relocated are identified, and an action plan is developed.	<input type="checkbox"/>
			5. Hazardous material sites are identified and characterized, and the responsibility and scope of remedial actions is specified.	<input type="checkbox"/>
4.12	SCC 70 Vehicles	32C	1. Refer to OP 38 for additional information.	<input type="checkbox"/>
			2. Vehicle performance requirements are specified and incorporated into the design criteria, the O&M plan, and the Bus or Rail Fleet Management plans. Preliminary specifications must include allowable vehicle static and dynamic clearance diagrams, allowable axle weight, allowable total weight, door location, floor height, passenger capacity (seated and under heavy load conditions), and ADA accommodation. For buses, the specification must also include fuel type and turning radius. For rail, the specification must include acceleration and deceleration characteristics and expected train consist.	<input type="checkbox"/>
			3. System Interface Functional Descriptions have been developed and advanced to include the following: definition of the subsystems that constitute the overall vehicle system; description and graphic depiction of each interface between on-board subsystems and wayside systems, and description of how each subsystem will meet the project requirements.	<input type="checkbox"/>
			4. Expected vehicle servicing, periodic maintenance, and component repair and replacement requirements (estimated time to repair and frequency of repair) should be compiled to support shop design (SCC 30).	<input type="checkbox"/>
			5. Testing requirements have been developed to include the following: high-level Test Program plan for both production and on-site acceptance, including	<input type="checkbox"/>

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			requirements for factory inspection and testing, first article and pre-shipment inspections, static and dynamic testing, and conditional acceptance.	
			6. Maintenance and training requirements should be defined and identified, including development of maintenance and training requirements for new system elements.	<input type="checkbox"/>
			7. Requirements for special tools, equipment, and initial spare parts orders have been established.	<input type="checkbox"/>
4.13	SCC 80 Professional services	32C	1. The roles and responsibilities of the project sponsor’s professional consultants (design, engineering, and construction management) may be distinguished from the project sponsor’s own professional staff. If alternative delivery systems (Design-Build (DB), Construction Manager/General Contractor (CM/GC)) are proposed, the costs of design professionals employed by the contractor should be identified.	<input type="checkbox"/>
			2. Costs associated with construction, including building contractors’ management, labor, indirect costs, overhead, profit, and construction insurance, should not be included in SCC 80 but in SCC 10 through 50, as appropriate. Cost estimates should conform to this allocation of cost.	<input type="checkbox"/>
			3. When the project sponsor’s manual labor, equipment, and facilities are used to facilitate construction or to assist in construction of the project, a Force Account plan and cost estimate should be provided. The cost of these services should be applied to the appropriate State Corporation Commission (SCC) code, except for start-up training.	<input type="checkbox"/>

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			4. Costs associated with permits, insurance, and taxes are researched, identified, and estimated.	<input type="checkbox"/>
			5. Costs associated with start-up training and simulated operation for operators and supervision is estimated.	<input type="checkbox"/>
5.0	SCHEDULE			
5.1	Basis of Schedule	34	1. Includes a logical document that discreetly defines the basis for the development of the project schedule. The document identifies key elements, issues, and special considerations (assumptions, exclusions, etc.)	<input type="checkbox"/>
			2. Describes the planning basis, including resource planning methodology, activity identification, duration estimating, and source and methodology for determining logic and sequencing.	<input type="checkbox"/>
			3. Identifies labor productivity adjustments, including congestion assessment, extended work hours, winter work, curfews, etc.	<input type="checkbox"/>
			4. Documents all production rates, identifies basis for startup and sequencing requirements, and defines any owner requirements (regulatory, environmental, quality/inspection)	<input type="checkbox"/>
			5. Is consistent in use of the time-sensitive variables in the Capital Cost Estimate, including year-of-expenditure assumptions, and durations incorporated into the master schedule.	<input type="checkbox"/>
5.2	Schedule Format	34	Is consistent with relevant, identifiable industry or engineering practices. Software is appropriate for the size and complexity of the project.	<input type="checkbox"/>

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5.3	Schedule structure	34	1. Work Breakdown Structure (WBS) has been applied in the development of the schedule.	<input type="checkbox"/>
			2. WBS is consistent with the analyzed plan and program for all project participants' agreed-upon roles, responsibilities, capabilities, and capacities.	<input type="checkbox"/>
			3. The project schedule is in original and SCC format.	<input type="checkbox"/>
5.4	Schedule level	34	The schedule shall be sufficiently developed in detail to determine the validity of the project's critical path to revenue operations. It should break out, at a minimum, project milestones, FFGA/SSGA-related work, planning and environmental, public involvement, Project Development, value engineering, final design, ROW, permits, third-party agreements, public and private utility relocations, safety and security, construction, trackwork, train control systems, vehicles, system integration, communications, fare collection, and startup and testing in sufficient detail to confirm the reasonableness of durations and sequencing and to estimate the probability of schedule risk	<input type="checkbox"/>
5.5	Schedule elements	34	1. Schedule reflects the project scope that is described in the approved environmental document.	<input type="checkbox"/>
			2. Schedule includes adequate time and appropriate sequencing for: <ul style="list-style-type: none"> • Reviews <ul style="list-style-type: none"> ○ Required FTA-related environmental, risk assessment, PMP reviews, readiness reviews at designated milestones, and grant approvals ○ Project reviews by applicable local, State and Federal jurisdictions and affected third parties • Agreements <ul style="list-style-type: none"> ○ ROW acquisition; household/business relocations ○ Utilities relocation 	<input type="checkbox"/>

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			<ul style="list-style-type: none"> ○ Railroad purchase and/or usage ○ Interagency Agreements ○ Funding time frames and/or milestones for FTA and non-FTA sources ○ Procurement and manufacturing durations for equipment and vehicles, especially for long lead items, are adequate and complete ○ Procurement of design contracts for civil/facilities, systems, and vehicles ○ Performance of design contracts to produce 100 percent complete documents prior to bidding ○ Bid and award periods reflect the required sequencing and durations for the selected project delivery method and are logically tied to the proper work activities ○ Construction processes and durations are adequate and complete, and allow schedule contingency for potential delays, including inter-agency work, utility relocation, civil, architectural, and systems work, project sponsor operations and maintenance, mobilization, and integrated pre-revenue testing. 	
5.6	Resource scheduling	34	1. Quantities and costs as defined in the cost estimate match the resources/costs assigned to the activities in the schedule.	<input type="checkbox"/>
			2. The distribution of resources and costs per specification or industry standards are reasonably associated with the activity to which it is assigned.	<input type="checkbox"/>
5.7	Schedule control	34	Define the approach to and use of scheduling tools, such as scheduling software, project sponsor procedures for schedule change and update, use of a WBS, assignment of staff responsibility for schedule, cost loading, resource loading, etc.	<input type="checkbox"/>
6.0	CAPITAL COST ESTIMATE			

Item	Description	OP	PMOC Review	Done
6.1	Basis of Estimate	33	1. The project sponsor needs to provide a Basis of Estimate report describing their cost estimating approach. The report should be developed by the project sponsor as part of the initial Project Development work and updated with each subsequent estimating effort.	<input type="checkbox"/>
			2. The Basis of Estimate outline should be as follows: <ul style="list-style-type: none"> • Estimating methodology: Describe the general approach to defining and quantifying the project Capital Cost Estimate. • Sources of cost data: Define the nature and sources for cost data used in the preparation of the estimate; <ul style="list-style-type: none"> ○ Cost estimating assumptions ○ Allocated contingency ○ Unallocated contingency ○ Escalation ○ Contract packages • Estimating procedures – If multiple parties are estimating parts of the project, this memo should help to ensure consistency of approach. • Organization and management of cost data (by segment elements; project-wide elements) • Bottom-up and top-down approaches (for example, at Entry to Project Development, it could be reasonable to use a bottom-up estimating approach for guideway, stations, and support facilities; and a top-down estimating approach for sitework, systems, ROW, existing improvements,, and vehicles) • Facilities (guideway, stations, support facilities) Costing Procedures for typical construction methods and for construction and components unique to transit projects. 	<input type="checkbox"/>

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			<ul style="list-style-type: none"> • Estimate limitations: Describe perceived or known uncertainties, as well as unknowns that could lead to changes in the estimate due to changes in project scope and design standards, incorrect unit cost or quantity assumptions, and unforeseen problems in implementation. • Tracking costs: Describe how capital costs in the SCC format will be tracked through construction, revenue operations, etc. (for example, provision in Division 1 requiring contractor to submit SCC update with monthly pay application). FTA requires that costs be tracked in the SCC format through construction, revenue operations, and through two years of post-revenue operations to document contract closeout and the “after” point for the Before-and-After Study. (Note that the Before-and-After Study may not be required for Small Starts projects. 	
6.2	Value Engineering (VE) report	33	<ol style="list-style-type: none"> 1. VE effort has been performed on the design completed in Project Development and a report has been prepared. Focus should be on VE recommendations approved by the project sponsor and incorporated into the project. The project sponsor should identify why recommendations were approved or denied. 	<input type="checkbox"/>
			<ol style="list-style-type: none"> 2. The cost estimate should incorporate the accepted changes. 	<input type="checkbox"/>
6.3	Standard Cost Categories (SCC) workbooks (see References section)	33	<ol style="list-style-type: none"> 1. WBS is formatted to conform to FTA SCC. 2. Workbooks include SCC annualized worksheets. 3. Estimate is in general agreement with the latest SCC information contained in the project sponsor’s most recent New Starts submission. 	<input type="checkbox"/>

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6.4	Capital cost estimate	33	<p>1. SCC category 10-50: Fixed Construction (guideways, stations, support facilities, sitework, systems)</p> <ul style="list-style-type: none"> • Construction materials <ul style="list-style-type: none"> ○ Quantities have been calculated with appropriate conservatism to accommodate development to a more advanced stage of design if appropriate. ○ Allowances for material quantities have been included for commodities, which cannot be fully quantified at the present level of design. ○ Unit prices have been developed using the best available local market information. ○ Project sales tax exemption status has been established if appropriate and incorporated in materials costs. ○ Quotes have been obtained for specialty and price-sensitive materials. ○ Materials costs reflect market volatility. • Construction labor <ul style="list-style-type: none"> ○ Local wage rates, fringe benefits, and work rules are incorporated. ○ Local payroll taxes and insurance rates are incorporated. ○ Holiday/show-up/vacation pay is incorporated. ○ Crew productivity is appropriate and conservative for the task under evaluation. ○ Availability and variability of utility and railroad outages and “track time” have been incorporated in a conservative manner in determining the crew productivities for impacted work. • Construction equipment <ul style="list-style-type: none"> ○ Local equipment rental rates and current fuel costs are incorporated. ○ Quotes have been obtained for specialty equipment. 	<input type="checkbox"/>

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			<ul style="list-style-type: none"> • Escalation for construction materials, labor, and equipment <ul style="list-style-type: none"> ○ Confirm that adequate escalation rates have been applied to estimates of material, labor, and equipment costs. Costs to anticipate prices at the time of project bid. • Special considerations <ul style="list-style-type: none"> ○ Utility and railroad labor, equipment, and overhead rates have been verified and incorporated in third-party or “force account” work pricing, as well as local utility/railroad work and safety rules ○ Special consideration has been given to support operations and facilities for tunneling operations, facilities to support operations in contaminated/hazardous materials, etc. • Construction indirect costs, multipliers for risk etc. <ul style="list-style-type: none"> ○ Contractor indirect and overhead costs are advanced beyond a percent of the associated construction direct costs and should be analyzed based on field and home office indirect costs, such as contract duration, appropriate levels of staffing (including project managers, engineers, safety engineers, schedulers, superintendents, QA/QC engineers, craft general foreman, labor stewards/nonproductive labor, warehousing, project trucking, survey layout, purchasing, timekeeping, etc.), mobilization/demobilization costs, equipment standby/idle time costs, reviewer office/lab/tool facilities, safety equipment, QA/QC testing equipment, temporary utilities (sanitary/power/light/heat), jobsite and public security measures, etc. ○ Appropriate costs have been included for payment and performance bonds and special insurance requirements (RR protective, pollution liability, etc.). 	

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Item	Description	OP	PMOC Review	Done
			<ul style="list-style-type: none"> ○ Other construction insurance costs and/or project-wide coverage (Owner Controlled Insurance Policy) has been included based on quotes from appropriate carriers. ○ Contractor profit/risk costs have been incorporated that reflect the proposed delivery method and expected level of competition by contract package (higher profit margin where few competitors will bid). 	
			<p>2. Cat. 60 - Real Estate</p> <p>Includes estimated costs (acquisition costs) for the real estate and associated relocation costs. Costs for professional services, both contracted and in-house legal, appraisal, review appraisal, settlement costs, environmental site assessments, demolition, real estate, and relocation consultants have been included (and not included in SCC 80). Easements, acquisitions, inspections, takings, etc. have been appraised or estimated by qualified professionals familiar with local real estate markets and practices, especially any acquisitions involving freight railroads. Includes allowance for the expected increase in costs over appraised value. Includes costs for taxes attributable to real estate acquisition.</p>	<input type="checkbox"/>
			<p>3. Cat. 70 – Vehicles</p> <p>Estimates account for current purchase prices for similar vehicles or quoted prices from manufacturers. Includes costs for professional services (both contracted and in-house) for vehicle design and procurement, and not included in SCC 80. Estimates allow costs for special tools and equipment and spare parts. Requirements for non-revenue support vehicles identified and included in estimate.</p>	<input type="checkbox"/>
			<p>4. Cat. 80 – Professional Services</p> <ul style="list-style-type: none"> • Costs included for both contracted and in-house, for all professional, technical, and management services related to the design and construction 	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			<p>of fixed infrastructure (Cats. 10–50) during the Project Development, engineering, and construction phases of the project. This includes environmental work, surveying, geotechnical investigations, design, engineering and architectural services; materials and soils testing during construction; specialty services such as safety or security analyses; value engineering, risk assessment, cost estimating, scheduling, Before-and-After studies, ridership modeling and analyses, auditing, legal services, administration and management, etc. by agency staff or outside consultants.</p> <ul style="list-style-type: none"> • Professional liability insurance and other non-construction insurance should be included on 80.05. • Confirmation that cost estimates are based on realistic levels of staffing for the duration of the project through close-out of construction contracts. (The estimate should be consistent with the PMP.) • Confirmation that costs for permitting, agency review fees, legal fees, etc. have been included. • General conditions included for design, construction, and procurement contracts. • If alternative delivery systems (DB, CM/GC) are proposed, the costs of design professionals employed by the contractor should be identified. 	
6.5	Contingency	33	<ol style="list-style-type: none"> 1. Allocated Contingency: Confirmation that adequate contingency has been allocated to each of the SCC categories based on the perceived risk inherent to each category’s estimate. 2. Cat. 90 - Unallocated Contingency: Confirmation that adequate contingency has been added to the total project cost based on the perceived project risk. 	<input type="checkbox"/> <input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			3. Total Contingency should be consistent with that derived in the RCMP.	<input type="checkbox"/>
6.6	Cat. 100 – Finance charges	33	Finance charges included, consistent with FTA’s Financial Management Oversight Consultant’s review.	<input type="checkbox"/>
6.7	Inflation	33	Confirmation that adequate inflation rates have been applied to Base Year project costs to anticipate costs at procurement or bid; the Year of Expenditure costs should be developed thoughtfully. Reference indices should include Environmental News-Record (ENR) Building Cost Index and Construction Cost Index or other demonstrated authoritative source.	<input type="checkbox"/>
7.0	RISK AND CONTINGENCY MANAGEMENT			
7.1	Risk process established	40	1. Risk organization is in place, with independent reporting to executive management and roles and responsibilities defined.	<input type="checkbox"/>
			2. Contingency management, contingency use authority, and reporting structure is established.	<input type="checkbox"/>
7.2	Risk identification	40	1. Risk register is developed, with risk categories and priorities.	<input type="checkbox"/>
			2. Process is established to update risk register.	<input type="checkbox"/>
7.3	Risk assessment	40	1. Valuation of project cost risk by method appropriate for project	<input type="checkbox"/>
			2. Valuation of project schedule risk by appropriate methods.	<input type="checkbox"/>
			3. Documented report demonstrating valuation method and result.	<input type="checkbox"/>
7.4	Risk mitigation	40	1. Mitigation process in place with documented responsibilities.	<input type="checkbox"/>
			2. Established insurance plan.	<input type="checkbox"/>

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Item	Description	OP	PMOC Review	Done
			3. Contingency amounts identified and tied to risk assessment.	<input type="checkbox"/>
			4. Requirements risks clearly identified and resolved; plans in place for unresolved requirements risks.	<input type="checkbox"/>
			5. Secondary mitigation plan is defined and documented.	<input type="checkbox"/>
7.5	Risk management	40	1. Plans are in place for amendment of the risk register during the work, to both succinctly catalogue additional significant issues that arise, as well as to identify closure of issues as they become resolved to the satisfaction of the project sponsor and FTA.	<input type="checkbox"/>
			2. Plans and timing are in place for systematically updating the RCMP.	<input type="checkbox"/>
8.0	CERTIFICATIONS, REPORTS, AND ADMINISTRATIVE REQUIREMENTS			
8.1	Administrative requirements			
8.1.1	Legal authority to implement transit mode project		The project sponsor must perform a review of existing statutes to gain a full understanding of the project sponsor’s authority and any legal constraints that may affect the project. The purpose should be to identify requirements and constraints in an orderly and timely manner and to deal with them as the project advances. Failure to recognize and accommodate legal requirements may jeopardize the entire project and, at the very least, severely impact the subsequent grant approval process and project schedule, as well as project costs. The project sponsor must be diligent in maintaining cognizance of changes in the legislative/regulatory environment that may impose future constraints on a project. This legal authority must be reviewed to confirm that it addresses all forms of project delivery that may be considered.	<input type="checkbox"/>
8.1.2	Legal authority to use alternative project delivery method		Provide evidence of authority under non-Design-Bid-Build format.	<input type="checkbox"/>



APPENDIX C: SAMPLE TABLE OF CONTENTS FOR PMOC OP 52 REPORT

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1.2. Project Management Oversight Contractor (PMOC) Review

1.3. Findings

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1.3.2. Management Capacity and Capability Review

1.3.3. Scope

1.3.4. Schedule

1.3.5. Cost Estimate

1.3.6. Project Risk and Contingency Review

1.4. Conclusion

1.5. Recommendations

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2.2. Project Description

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2.5. Project Schedule

2.6. PMOC

2.7. Engineering Approval Letter Requirements

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3.2.2. Conclusion

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3.3.1. PMOC Assessment

3.3.2. Conclusion

3.3.3. Recommendations

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3.7. Risk and Contingency Management Plan

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9.0 CONCLUSION/RECOMMENDATIONS

9.1. Conclusion

9.2. Recommendations



APPENDIX D: ACRONYMS

Acronym	Term
ACOR	Alternate Contracting Officer's Representative
ADA	The Americans with Disabilities Act
AGC	Associated General Contractors of America
ATC	Alternative Technical Concepts
AVS	Associate Value Specialist
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor and Statistics
BRF	Beta Range Factor
BY	Base Year
CATEX or CE or CX or Exclusion	Categorical Exclusion
CCIP	Contractor Controlled Insurance Program
CE	Categorical Exclusion
CER	Cost Estimating Relationship
CFR	Code of Federal Regulations
CIG	Capital Investment Grant
CLIN	Contract Line Item Number
CM	Construction Manager
CM/GC	Construction Manager/General Contractor

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Acronym	Term
CMAR	Construction Manager at Risk
COR	Contracting Officer's Representative
CPM	Critical Path Method
CPTED	Crime Prevention Through Environmental Design
CR	Constructability Review
CVS	Certified Value Specialists
DB	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DBF	Design-Build-Finance
DBFOM	Design-Build-Finance-Operate and Maintain
DBOM	Design-Build-Operate and Maintain
DEIS	Draft Environmental Impact Statement
DF	Designated Function
DHS	Department of Homeland Security
DTS	Department of Transportation Services
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMP	Emergency Management Plan

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Acronym	Term
ENR	Engineering News-Record
EPCM	Engineering/Procurement/Construction Management
ESWA	Early Systems Work Agreement
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FLSSC	Fire/Life Safety and Security Committee
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GAO	Government Accountability Office
GC	General Contractor
GC/CM	General Contractor/Construction Manager
GMP	Guaranteed Maximum Price
HAZMAT	Hazardous Materials
IP	Implementation Plan
LONP	Letter of No Prejudice
LPA	Locally Preferred Alternative

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Acronym	Term
MBE	Minority Business Enterprise
MCC	Management Capacity and Capability
MDBF	Mean Distance Between Failures
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NTE	Not-to-Exceed
NTP	Notice to Proceed
O&M	Operation and Maintenance
OCIP	Owner Controlled Insurance Program
ODCs	Other Direct Costs
OHA	Operational Hazard Analysis
OIG	Office of Inspector General
OMP	Operations and Management Plan
OP	Oversight Procedure
P3	Public Private Partnership
PCMG	Project and Construction Management Guidelines
PD	Project Development
PDM	Project Delivery Method
PHA	Preliminary Hazard Analysis
PMO	Project Management Oversight

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Acronym	Term
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
POP	Project Oversight Plan
PTASP	Public Transportation Agency Safety Plan
QA/QC	Quality Assurance/Quality Control
R&D	Research and Development
RAMP	Real Estate Acquisition Management Plan
RAP	Rail Activation Plan
RCMP	Risk and Contingency Management Plan
RET	Risk Evaluation Tool
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Qualifications
ROD	Record of Decision
ROW	Right-of-Way
RSD	Revenue Service Date
S/DBE	Small/Disadvantaged Business Enterprises
SABCE	Stripped and Adjusted Base Cost Estimate
SABS	Stripped and Adjusted Base Schedule
SAVE	Society of American Value Engineers

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Acronym	Term
SCC	Standard Cost Category
SCIL	Safety Certifiable Items List
SGR	State of Good Repair
SIT	System Integration Testing
SITP	Systems Integration Test Plan
SOP	Standard Operating Procedure
SOW	Scope of Work
SSCVR	Safety Certification Verification Report
SSGA	Small Starts Grant Agreement
SSI	Sensitive Security Information
SSMP	Safety and Security Management Plan
STIP	Statewide Transportation Improvement Program
SYGA	Single Year Grant Agreement
TAR	Travel Authorization Request
TBM	Tunnel Boring Machine
TCC	FTA Office of the Chief Counsel
TCRP	Transit Cooperative Research Program
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery

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Acronym	Term
TIP	Transportation Improvement Program
TOD	Transit-Oriented Development
TPE	FTA Office of Planning and Environment
TPM	FTA Office of Program Management
TRB	Transportation Research Board
TSA	Transportation Security Administration
TVA	Threat and Vulnerability Assessment
URA	Uniform Relocation Assistance and Real Property Acquisition Act
U.S.C.	United States Code
VE	Value Engineering
VECP	Value Engineering Change Proposals
WBE	Women Business Enterprise
WBS	Work Breakdown Structure
YOE	Year of Expenditure